

Paediatric Type 2 Diabetes – medical treatment: funding, shortage of GLP1RA, complications, surgery

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Helping all children and young people with diabetes in East London to lead a healthy, happy life.

Outline

- Funding of new drugs
- GLP1RA shortage
- Treatment of complications
- Bariatric surgery

Funding of NICE approved medication

- **NICE Technology Appraisal (TA)**
 - Recommendation regarding new or existing drugs or treatment in the NHS
 - High-cost drugs will be funded through NHS-E or ICB.
 - Obligation of hospital to put drug on their formulary.
 - Hospital can claim money back
- **NICE guideline (NG) (eg Type 1 and 2 diabetes in CYP)**
 - Guidance for management of a condition, drugs not funded by NHS-E or ICB
 - Inclusion in formulary needs assessment by clinicians and pharmacy → Regional (eg North East London) Formulary and Pathway Group (FPG) (was DTC)
 - FPG will have discussions with ICB regarding funding
- **Chairman's action (Chairman of Hospital Drugs and Therapeutics Committee)**
 - Request/approval for individual funding of a drug by the hospital (max 5 patients)

Funding of medication

- Know your specialist paediatric pharmacist
- Find out if you have a 'Chairman's action request' and application form
- Know your Lead Formulary and Pathways Pharmacist in Trust/Hospital
- Have application form for inclusion of a drug on the formulary
- Work with your specialist paediatric pharmacist to apply for inclusion in formula
 - Sometimes 'add on' for paediatrics possible if drug already on formulary for adults.
 - Needs literature, guidance, expected numbers in next 3 years, costs.
- Form will go to Lead Formulary Pharmacist
- Invitation for discussion at FPG (Formulary and Pathway Group)/DTC
- Know your ICB and the Lead for Medicine (Diabetes) at the ICB

GLP1RA shortage memo

- Likely to last until end 2024. Shortage of all types of GLP1RAs

Patient Cohort	Management Plan
New patients	<ul style="list-style-type: none">• Do NOT initiate patients on GLP-1 receptor agonists for the duration of the shortage.• Optimise current treatment regimens in line with clinical guidance (NICE NG28 or NICE CG189).
Patients currently on a GLP-1 receptor agonist	<ul style="list-style-type: none">• Must only be used for licensed indications• Patients established on GLP-1 RAs should be prioritised for review in line with clinical guidance• Stop treatment in patients who have not achieved treatment targets (as outlined in NICE NG28 or NICE CG189).• Other considerations:<ul style="list-style-type: none">○ Do not switch between different brands of GLP-1 RAs (including between injectables and oral preparations)○ Do not double up a lower dose preparation where a higher dose preparation is not available○ Do not prescribe excessive quantities of GLP-1 RAs○ Support patients to access structured education and weight management programmes (where available)○ If switching a patient with type 2 diabetes on to insulin, ensure the chosen insulin is available as per SPS guidance

Complications in T2D vs T1D

- **Median HbA1c for T2D was 50.0 mmol/mol** (53.0 mmol/mol in 2020/21).
- **33.0% of T2D** aged 12 and above received all six 'key' health checks (59.7% in T1D)

Most complications of diabetes/obesity more common in T2D than in T1D:

	T2D 2021-22	T2D 2020-21	T1D 2021-22	T1D 2020-21
BP >98 th centile	46.1%	49.3%	29.9%	30.1%
Cholesterol > 5	27.9%	26.8%	19.0%	19.8%
BMI >85 th centile	92.8%	92.0%	42.3%	42.9%
retinopathy	8.4%	3.9%	11.4 %	16.9%
albuminuria	20.6%	23.4%	11.5%	10.3%

Treatment of complications (RLH/ACDC)

- **Hypertension**

- BP > 95th centile for height and sex on 3 occasions, 24 hr BP if possible
- First line: **focus on weight loss, exercise, and reduced salt intake**
- Second line if after 6 months no effect: start **ACE inhibitor (eg lisinopril 5-10 mg, max 80mg)**
- Aim for BP < 90th centile

- **Dyslipidaemia**

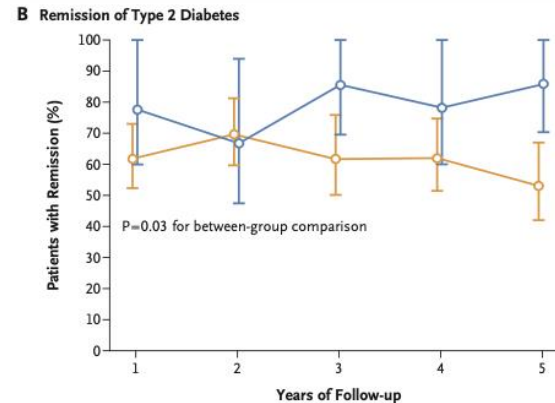
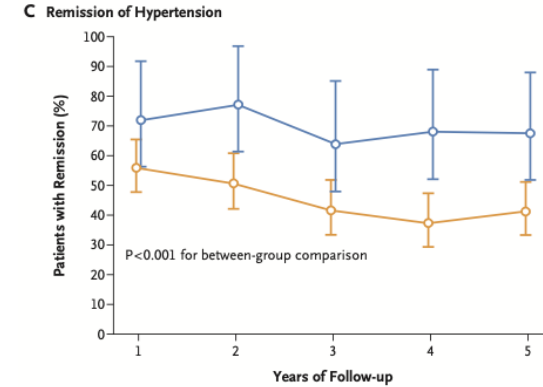
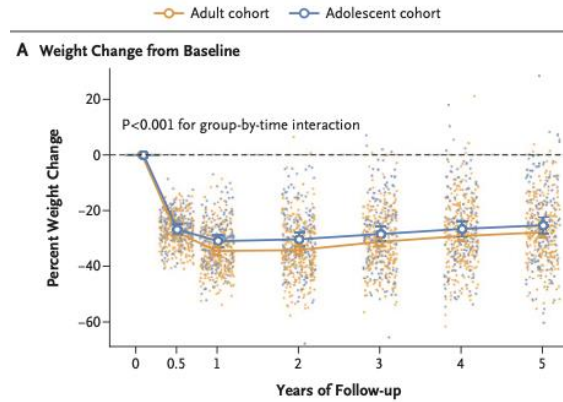
- If abnormal, **focus on dietary modification and improvement of hyperglycaemia**
- If after 6 months LDL still >3.4 mmol/L, **start statin (eg atorvastatin 10 mg OD)**
- Aim for LDL <2.6 mmol/L and increase statins accordingly 3 monthly or refer
- If persistent hypertriglyceridaemia , consider fibrate treatment (with lipid specialist)

Treatment of complications (RLH/ACDC)

- **NAFLD**
 - If fatty liver on US, **aim for weight loss and optimizing glycaemia**
 - Yearly US and consider referral gastro-enterologist if not improving
 - **Refer to gastro-enterologist** if ALT > 2-3x upper normal range
- **Albuminuria**
 - If spot urine albumen/creat ratio 3-30 mg/mmol, **repeat on 2 early morning samples** within 3-6 months
 - If continuing abnormal, despite lifestyle measures, **start ACE inhibitor** (lisinopril, enalapril)
 - Refer to nephrology, if urine alb/creat > 30 mg/mmol
- **Obstructive sleep apnoea**
 - Refer to respiratory sleep specialist

Last but not least... bariatric surgery

- Indication: BMI > 35 kg/m² with complications of overweight such as T2D and no effect of treatment for 12-18 months
- Bariatric surgery is extremely effective
- Leads to remission of T2D in most patients
- Reduces hypertension and retinopathy
- More reduction of complications of obesity by bariatric surgery in CYP compared to adults



- QUESTIONS ?

Barts Health Paediatric Diabetes Team



Type 2 focus group

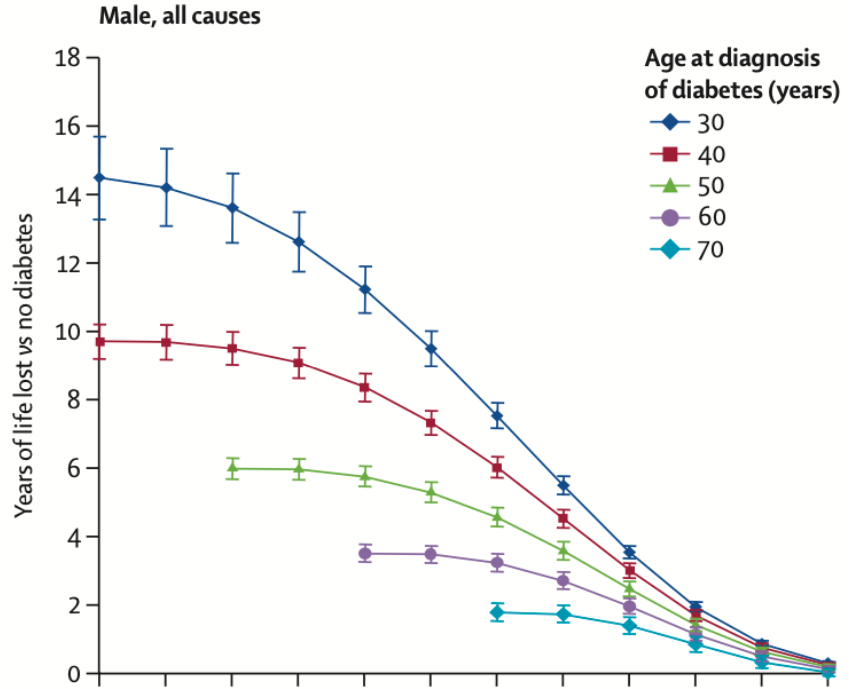
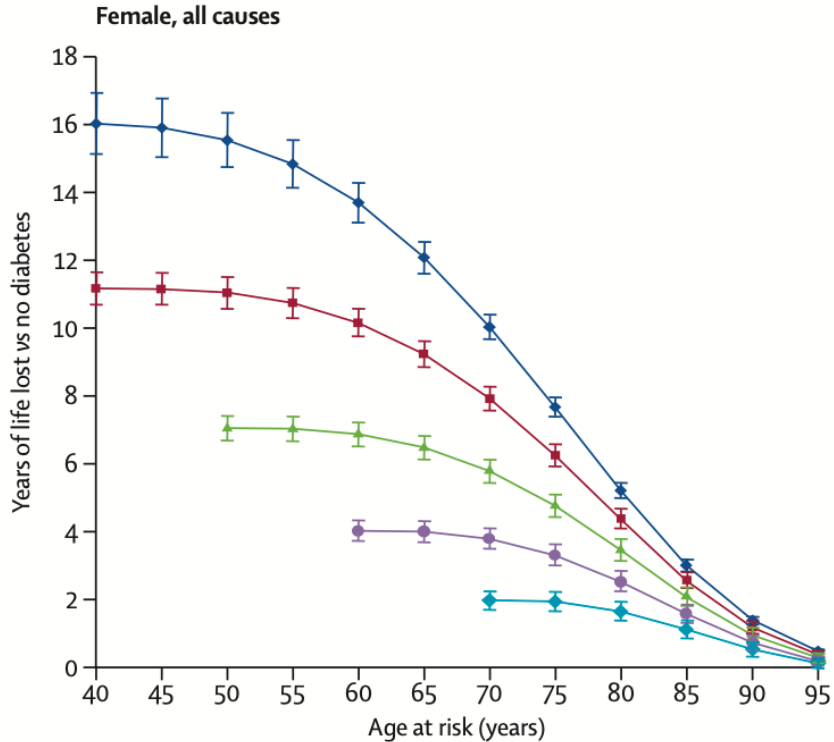
Evelien Gevers, consultant
Nicky Moore, Band 8 PDSN
Waseema Skogen, dietitian
Elizabeth Nash, psychologist
Nish Patel, database manager
Yasmin Khatun, database admin
Maggie Murphy, secretary

Current consultants RLH

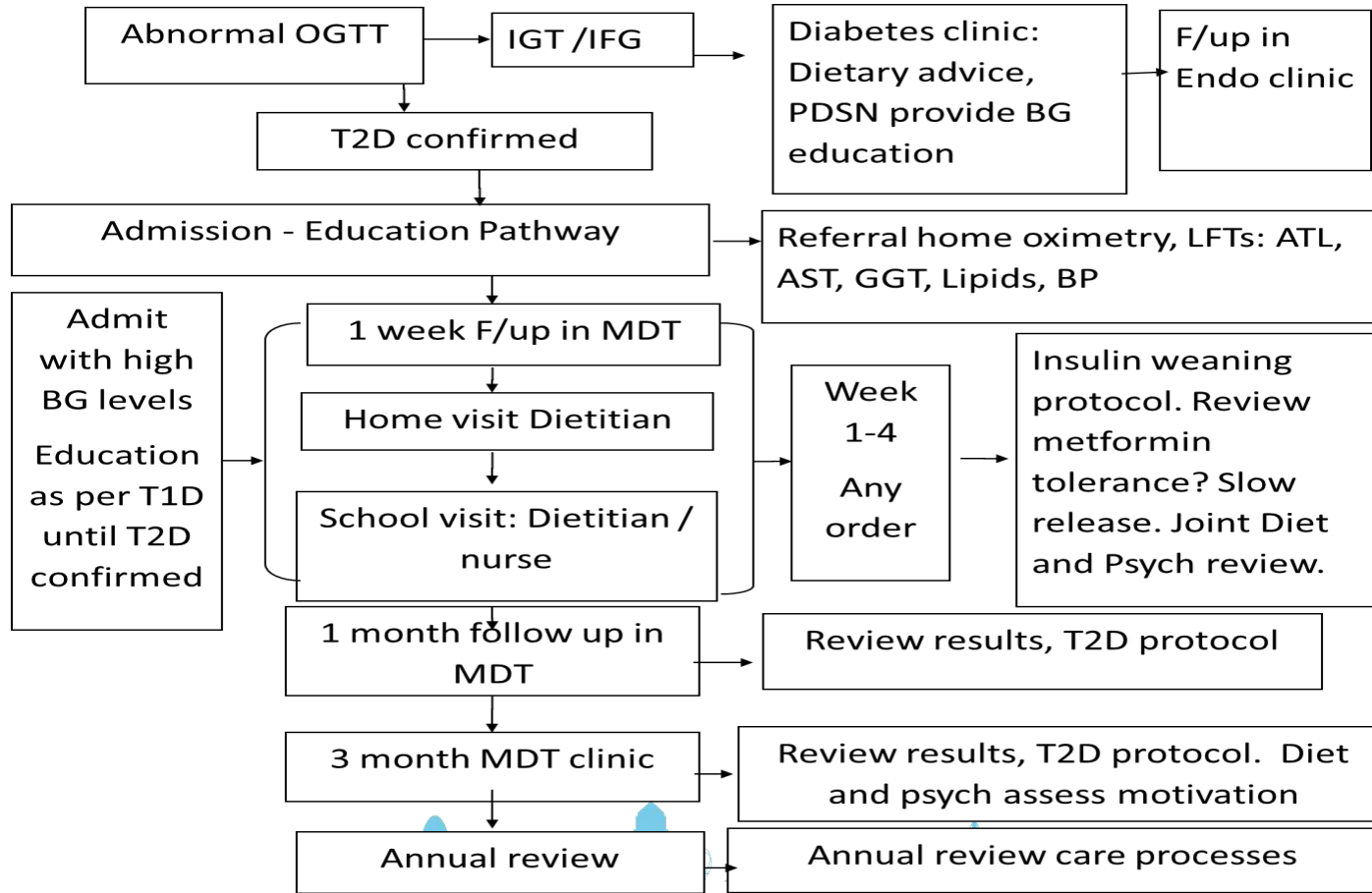
Evelien Gevers (Lead T2)
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Estimated years of life lost increase with earlier diagnosis of Type 2 Diabetes



Type 2 Diabetes – Pathway



Proforma T2 clinic – for doctor

Proforma T2 Diabetes clinic

Name Date

At diagnosis:

Weightkg BMIkg/m²

HbA1c mol/mol

Established diagnoses:

	Yes	Maybe	No
T2D			
Hypertension			
Fatty liver			
Hyperlipidaemia			
Microalbuminuria			
Sleep apnoea			

Other diagnosis:

Mental health diagnosis :

Investigations:

	YES/NO	If abnormal	YES/NO
LFTs with GGT		Abdo US	
		Refer gastro if ALT > 2X ULN	
Random lipids		Fasting lipids	
		if fasting lipids abnormal, focus on lifestyle and then treat	
Blood pressure		If > 95 th centile for height, and sex despite lifestyle for 6 months, start treatment	
Urine ACR		Abnormal if > 3. Repeat in first morning urine (2x). If > 30mg/mol creat, refer to paed nephrologist	
Sleep study		To be decided by resp team.	
Psychol referral		in house psychology	

Inpatient education

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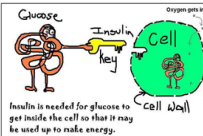
Eating well with Diabetes

Children and Young People
with Type 2 Diabetes

*Initial Lifestyle Advice and Medical
Management on metformin*

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What is Diabetes?



Glucose
Insulin
Oxygen gets in
Cell
Cell (ATP)


Insulin is needed for glucose to get inside the cell so that it may be used up to make energy.

- Diabetes is a condition in which the body is unable to control the glucose (sugar) in the blood.
- Glucose gets into the blood from the breakdown of carbohydrate foods in the diet.
- Glucose is also stored and released from the liver.
- Everybody has glucose in their blood, but in diabetes, the glucose level goes higher than the normal range of 4-7mmol/L.
- Insulin (a hormone made in the pancreas), is needed to allow glucose to pass from the blood into the body's cells to provide energy.
- In type 2 Diabetes the insulin does not work properly and therefore blood glucose levels rise.

Diabetes

- Type 1**
Usually diagnosed in childhood
The body stops producing insulin due to an autoimmune response
Treated with insulin
Cannot be prevented
- Type 2**
Usually diagnosed in adulthood and recently in teenagers
Insulin is not produced or used effectively
Caused by lifestyle, genetics and being overweight
Treated with lifestyle, tablets and insulin
Can be prevented / delayed or reversed

Symptoms



Prior to diagnosis you may have experienced weight loss and feeling tired.

You may have been thirsty and drinking lots which lead you to need the toilet more than usual.

These are symptoms of high blood glucose levels

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Eating well with Diabetes

Children and Young People
with Type 2 Diabetes

Starting on Insulin

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Insulin

If your blood glucose levels continue to be high then you may be commenced on insulin injections. These may be once or twice per day but could also be with your food.

If you follow all the exercise and diet advice, it is preferred that you will not need insulin. Sometimes you can come off insulin if you lose weight.

TOP TIPS

Storing insulin

- Store insulin that's not in use in the fridge at 2-8°C.
- Keep the insulin you're using at room temperature (under 25°C) as this makes it more comfortable to inject.
- Don't let insulin get too hot – avoid keeping it near a radiator, in direct sunlight or close to electrical devices.
- Don't let insulin freeze.
- Keep an eye on the expiry date and don't use the insulin if it's past this date.
- If you need to transport insulin, keep it in a cool bag or flask.


Basal insulin:
(Levemir, Tresiba, Lantus)

This may be the first insulin you are started on and is taken once or twice per day

Prandial / Bolus / Meal-time insulin:
(Novorapid / Humalog)

If we can still not control your blood glucose levels you may be started on insulin that you take with your meals

Injection Sites



- Make sure your hands and the area you're injecting are clean.
- Eject a tiny amount of insulin into the air to make sure the tip of the needle is filled with insulin (an 'air shot').
- Choose a site that has lots of fatty tissue, such as the tops of your thighs or bottom.
- Insert the needle at a 90° angle.
- Inject the insulin and count to 10 before removing the needle.
- Dispose of the used needle safely in a sharps bin

Proforma T2 clinic – for patient




Type 2 Diabetes Clinic




Name: _____




Date: _____




Is there anything you would like to discuss with the diabetes team today?
.....

1. How confident have you felt with:
(1= not confident at all 5= very confident)




Managing Blood Glucose levels
1 2 3 4 5
  




Taking Medication
1 2 3 4 5
  




Achieving dietary goals
1 2 3 4 5
  




Achieving activity Goals
1 2 3 4 5
  

2. How are you coping with your diabetes and:
(1=very badly, 5 = really well);

School/ Education / Work
1 2 3 4 5
  

Family Life:
1 2 3 4 5
  

Friends and Social Life
1 2 3 4 5
  

Activities and Hobbies
1 2 3 4 5
  

My HbA1c today is previously it was

My Average Blood Glucose mmol/l Finger prick	HbA1c % Clinic 3 month old measurement	HbA1c mmol/mol Clinic 3 month new measurement
6.2	5.5%	37
7.8	6.5%	48
8.2	6.75%	50
8.6	7.0%	53
9.5	7.5%	58
10.1	8.0%	64
11.0	8.5%	70
12.5	9.5%	80

Food Goals

Since last clinic I have.....

.....

My next goal is.....

.....

Exercise Goals:

Since last clinic I have.....

.....

My next goal is.....

.....

Medication Goals

Since last clinic I have.....

.....

My next goal is.....

.....

Family Goals

Since last clinic I have.....

.....

My next goal is.....

.....

